

Table 23. Schooling Fish Rankings Based on Number of Observations of Fish Type in Major Habitat and Substrate Classifications^(a)

	Common Name	Eelgrass	Sand	Gravel	Mixed Coarse	Cobble	Boulder
emb	Surfperch	2	1		3		4
Pil	Pile surfperch	3	1		2		
Str	Striped surfperch		1				
shi	Shiner surfperch	2	1	4	3		5
uip	Striped or Pile Surfperch	1	2		3		4
tub	Tubesnout	1	2	4	3		
uib	Herring or Sandlance	2	1	1			
uid	Unidentified fish	3	1	4	2		

(a) Rank of 1 equals greatest number of observations. Repetitive numbers equal the same number of observations

(schooling and non-schooling, respectively) based on the general habitat type, such as eelgrass, sand, or gravel. Based on this ranking, tubesnout occurred primarily in eelgrass habitat, whereas shiner surfperch were found primarily in sand. Other perch (striped, pile) were found predominantly in sand as well. Although a rather uncommon occurrence, it is possible that a small number of pipefish were present in our study area and misidentified as tubesnouts. However, based on the schooling behavior, horizontal orientation in the water column and frequent occurrence in eelgrass habitat, fish with these characteristics were considered to be tubesnouts and recorded as such. Flatfish and

Table 24. Non-Schooling Fish Rankings Based on Number of Observations of Fish Type in Major Habitat and Substrate Classifications^(a)

	Common Name	Eelgrass	Sand	Gravel	Mixed Coarse	Cobble	Boulder
uif	Flatfish	3	1	4	2		
cit	Sanddab		1	2			
ple	Right-eyed flatfish		1				
sta	Starry flounder	2	1				
cot	Sculpin		1		2		
uis	Buffalo or Great Sculpin		1				
gre	Greenling		2		1		
cab	Cabazon	2	1	3			
lin	Lingcod	2			1		
loc	Lingcod or Cabazon	2	1		2		
seb	Rockfish		1				
qui	Quillback Rockfish		1				
rtf	Ratfish	4	1	3	2		4
raj	Skate		1				

(a) Rank of 1 equals greatest number of observations. Repetitive numbers for any species means the same number of observations.

ratfish were usually found in sand, as were almost all other non-schooling species. Very few rockfish or lingcod were noted, and those present were found on sand.

The underwater video method of observation allowed a greater understanding of the habitat utilization by fish. Comparison of parallel and perpendicular footage taken in the same locations on different days revealed similar patterns of occurrence. The drawbacks of this method are the higher frequency of unidentified species compared with

more invasive techniques of collection and identification of organisms, and the possible underestimate of species and numbers recorded in eelgrass habitat which provides excellent refuge and cover for fish.

Macroinvertebrates were recorded and identified to specie where possible. The exceptions were sea stars, which were identified to class. White-plumed anemones and juvenile orange sea pens were the most abundant invertebrates recorded. Sea stars occurred frequently in all areas as well. All invertebrates were predominantly found on sand with the exception of jellyfish, which were found in the water column above eelgrass habitat (Table 25). Similar to fish, macroinvertebrates may have occurred more extensively in eelgrass habitat than were observed and recorded in the video because of the natural visual cover from predators.

Geoducks, *Panopea generosa*, were in all likelihood present in the study area based on the Geoduck Atlas (WDF&W, 1999) of known geoduck tracts in the state of Washington. However, our survey could not substantiate the presence of geoducks for several reasons. Numerous burrows were observed in the video footage at the depth range of commercially viable tracts (-6 m to -23 m MLLW). Unfortunately, these could not be confirmed as geoduck or some other bivalve burrows based on the size and shape of the burrow. Stock assessment regulations for geoducks require that geoduck surveys not be conducted between October 15th and February 28th due to the low "show factor" of geoducks during the winter months (Goodwin, 1973). This could explain our observations of no geoduck sitings in the study area. Additionally, regulation geoduck surveys are conducted by counting all "shows" diver transects, rather than through video.

Although our data does not indicate the presence of geoducks in the study area, it is quite probable that they exist and would be visible at other times of the year.

Table 25. Macroinvertebrate Rankings Based on Number of Observations of Macroinvertebrate Type in Major Habitat and Substrate Classifications^(a)

	Common Name	Eelgrass	Sand	Gravel	Mixed Coarse	Cobble	Boulder
cal	Sea Cucumber		1		2		
can	Crab—Dungeness, Red Rock, or Slender Crab	2	1		2	3	
uic	Crab	2	1				
uib	Bivalve		1				
jel	Jellyfish	1	2				
met	White-Plumed Anemone		1	3	2		4
uiu	Anemone (Urticina Spp.)		1		2		
uia	Anemone		1		2		
osp	Orange Sea Pen	2	1				
uin	Nudibranch		1				
uis	Sea Star	3	1	5	2	4	
uid	Unidentified Invertebrate	2	1	3			

(a) Rank of 1 equals greatest number of observations. Repetitive numbers equal the same number of observations.